

THE BLESSING OF THE COMMONS*

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The Tragedy of the Commons: The problem of individual gain versus community interests has been discussed in terms of the well-known "Tragedy of the Commons" described by Hardin¹. In that description, the personal benefits that each individual/household derives from promoting the further destruction of the commons (i.e., community resource) are larger and more immediate than the personal loss from the marginal, slow and long-term destruction of the commons -- hence, each individual/household chooses to derive the immediate personal benefit rather than forgo it and save the commons. This communication presents a case study of how Pura village in South India triumphed over the "Tragedy of the Commons".

Pura's Community Biogas Plants System: Pura's traditional system of obtaining water, illumination and fertilizer (for the fields) is shown in Figure 1. This was replaced between 1987 and 1988 with the present community biogas plants system² -- the main components and the flows of inputs/outputs of which are shown in Figure 2.

The operation of the system consists of the following activities (Figure 2):

- (1) delivery of cattle dung by households from 0645 to 0800 hours in winter and in summer from 0500 to 0700 hours in the morning (24 % by women, 27 % by girls, 27 % by boys, and 22 % by men),
- (2) weighing the dung delivered by the households owning bovines (80% of the total households) and recording the quantities in their pass-books³ and in the ledger-books of the system,
- (3) returning the processed sludge to those who want to withdraw sludge,
- (4) mixing the dung with water in a 1:1 ratio (by volume) and charging the biogas plants with the dung-water mixture,
- (5) pouring the slurry displaced from the biogas plants by the charged dung-water mixture on to the sand-bed filters for filtration and production of de-watered sludge,
- (6) releasing the biogas from the plants and piping it to the engine, adding the requisite amount of diesel, and starting the dual-fuel engine and the electrical generator,
- (7) supplying the electricity either for running the submersible pump and pumping the borewell water to the overhead tank or for the electrical illumination of homes,

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- (8) keeping the biogas plants and their surroundings clean,
- (9) visiting the households to receive payments for the electric lighting and to make payments for the delivery of dung to the plants, and
- (10) maintaining the system records and accounts.

Apart from activity (1), i.e., delivery of dung to the plants and withdrawal of sludge, all the other activities involving the operation of the biogas plants, the electricity generation and distribution sub-system and the water supply sub-system, have been carried out by two youth of the village who have been employed by the project.

A comparison of the present community biogas plants system with the traditional system of obtaining water, illumination and fertilizer shows that the households are winners on all counts. Not only have the households lost nothing, but they have gained the following:

- (1) better and safer water than the water from the open tank⁴,
- (2) less effort to get this improved water,
- (3) better illumination than the traditional kerosene lamps or even electric lamps running on the unreliable, low-voltage grid electricity,
- (4) cheaper illumination for the households using kerosene lamps,
- (5) improved fertilizer which has greater nitrogen content and is less conducive to the growth of weeds compared to farmyard manure,
- (6) a dung delivery fee to those (mainly women and children) who deliver the dung to the plants and take back the sludge.

In addition, the village (as a collective) through its Grama Vikas Sabha (Village Development Committee) has gained in the following ways:

- (1) training and skill upgradation for two of its youth in the operation and maintenance of the biogas system,
- (2) challenging jobs for these two youth,
- (3) revenue for the village to the extent that the total payment received for the system outputs delivered inside the houses can exceed the expenses for diesel and dung delivery fees,
- (4) a powerful mechanism that initiates, ensures and sustains village-scale cooperation without which the village will revert to a less pleasant way of life in the matter of water and illumination,
- (5) a distinct improvement in the quality of life with regard to water (and therefore health) and illumination,
- (6) a small but significant advance in checking the growing erosion of self-reliance, thanks to the realization that the current status and the future development of the energy system can be decided and implemented by the village, i.e., their future in this matter is in their hands⁵.

The Blessing of the Commons: The Pura Community Biogas Plants system illustrates a principle that shall be termed here the "Blessing of the Commons" -- the converse of the well-known "Tragedy of the Commons". According to the "Blessing of the Commons", the price that an individual/ household pays for not preserving the commons far outweighs whatever benefits there might be in ignoring the collective interest. In other words, there is a confluence of self-interest and collective interest so that the interest of the commons is automatically advanced when individuals pursue their private interests. In the case of Pura, non-cooperation with the community biogas plants results in access to water and light being cut off by the village, and this is too great a personal loss (particularly for the women of the household) to compensate for the minor advantage of being a loner.

Individual Initiative plus Local Community Control -- a Third Option: With the growing experience and awareness of the defects of state control over the operation and maintenance (regulation) of the commons, the privatization (deregulation) option with its emphasis on the market is being offered as a solution to the problem of monitoring and control of common resources and facilities. The market, however, may be an excellent allocator of men, materials and resources, but it does not have a very successful record at looking after equity, the environment and the long-term, i.e., in situations warranting a low discount rate. In this debate, it is invariably forgotten that the type of individual initiative subject to local community control necessary for the "Blessing of the Commons" situations is a distinct third option that has very attractive features.

In Pura, this third option has without external control successfully maintained and operated water-supply and electrical illumination systems for several years. It has ensured the careful husbanding of resources and enlisted the cooperation of every one of the households in the village. Finally, it has performed outstandingly better than the centralized grid-electricity system in the matter of collection of dues and reliability of electricity supply.

Blessing of the Commons -- the Key to the Survival of Villages: There must have been many examples of "Blessing of the Commons" that contributed to the survival of Indian villages for centuries in spite of the centrifugal forces tearing them apart. Among those examples must have been the maintenance of village tanks, common lands, woodlots, etc. It is important to discover and utilize such examples for the design of rural development projects. In the case of Pura, the experience from the Pura Community Biogas Plants is being used as a heuristic (i.e., a device) for designing scenarios for the future of the energy centre⁶.

References

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- 2.. (a) Reddy, A.K.N. and Balachandra, P. "The Economics of Electricity Generation from the Pura Community Biogas System", presented at the Seminar on the "Techno-economic Considerations of Power Generation using Renewable Sources of Energy", 27-28 November 1989, Karnataka State Council for Science and Technology, Indian Institute of Science, and published in Power Generation through Renewable Sources of

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(b) Rajabapaiah, P., Jayakumar, S. and Reddy, A.K.N., "Biogas Electricity -- The Pura Village Case Study", Chapter 19 pp 790-815 in Fuels and Electricity from Renewable Sources of Energy, eds. Johansson, T.B., Kelly, H., Reddy, A.K.N. and Williams, R.H., Island Press (1991), Washington, D.C.

- 3.. Similar to bank passbooks -- dung delivered is credit like money deposited and sludge withdrawn is debit like money withdrawn.
- 4.. The word tank is used in India to describe a large pond or reservoir that has been constructed to collect and store rain-water.
- 5.. Reddy, A.K.N., Somasekhar, H.I., Rajabapaiah, P and Jayakumar, S. Scenarios for the Evolution of the Pura Energy Centre, International Energy Initiative, and ASTRA, Indian Institute of Science (under publication).
- 6.. *ibid*